

Designed with waste in mind

Designing waste out of the commercial kitchen environment



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WASTE SOLUTIONS

Designed with waste in mind

Designing Waste Out Of The Commercial Kitchen Environment

Foreword

Any responsible business will have waste high on the list of issues that need addressing for three reasons.



It is the right thing to do to minimise resource use for future generations, customers demand it and it makes good business sense. The actions, tips and best practice outlined in this report should dramatically reduce your waste output whilst adding a healthy boost to your bottom line.

It is time to take another look at the catering environment to ensure your kitchen is designed with waste in mind.

Paul Anderson

Managing Director
Meiko UK

About Meiko

Meiko UK is the UK arm of the global warewashing and food waste handling specialist, Meiko Group.

Meiko's mission is to make the world a cleaner and more sustainable place by using innovative technology for warewashing, cleaning, disinfection and food waste handling.

Meiko products combine sustainability with high efficiency – the Meiko name has been synonymous since 1927 with superb build quality, from small front-loading glass and dishwashers to larger multi-tank and flight conveyor machines and a range of food handling solutions.

BioMaster is the latest innovation, from Meiko Green Solutions. Unlike many competitive food waste solutions, BioMaster takes all food waste including cooking oils and fats and even bones to create a sustainable return in the form of biomass product.

Biomass is used to create energy, providing a sustainable return, especially compared to competing 'grey water' solutions which see any benefit from food waste going down the drain!

Food waste handling systems such as Meiko BioMaster are only installed once and have a potential lifespan counted in decades, far beyond conventional kitchen equipment.

This type of equipment is changing the economics of the catering equipment industry, while improving efficiency, saving labour and helping the planet by maximising our scarce resources!

www.meiko-uk.co.uk www.meiko-green.com

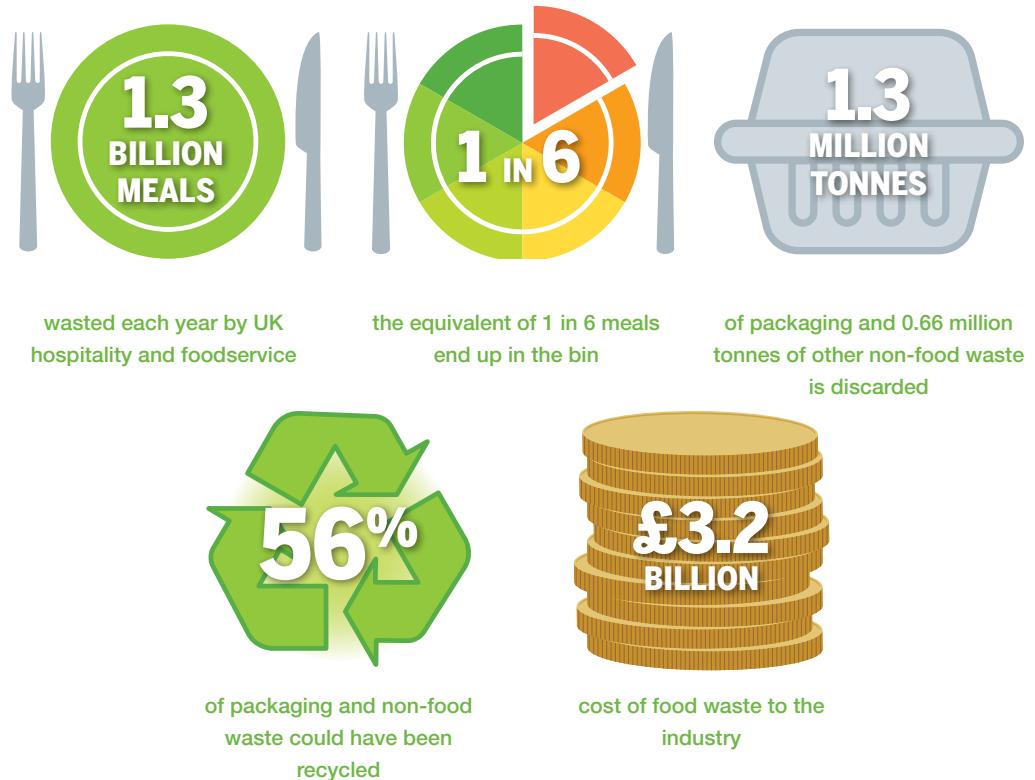
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Designed with waste in mind

Designing Waste Out Of The Commercial Kitchen Environment

Design for waste reduction



Source: WRAP and www.guardiansofgrub.com

Foodservice environments create waste, from the minute equipment and ingredients are delivered, travel through prep and cook and are served to the customer, to plates returning to the pot wash or disposables hitting the bin.

But it's time to turn on its head the idea that this waste is inevitable. This report takes a whole kitchen view that designs with waste in mind to support the preservation of resource – from food, energy, water and packaging to staff effort – in one indispensable go-to guide.

It goes to the top of the waste hierarchy to find ways to take waste out of the equation, but also covers ways to ensure unavoidable wastes are managed as sustainably as possible. It covers how equipment and counters should be sited for optimum workflow, enabling streamlining, improved efficiency and more pleasant working environments. It covers the positioning of waste stations that support measurement and monitoring, whilst ensuring unwanted items end up in the right place.

Why care?

Foodservice is under greater pressure than ever to tackle waste. Budgets are being squeezed hard, whilst high profile campaigns continue to highlight issues ranging from plastics to food waste. Meanwhile, climate strikes, the widespread acceptance of the urgent need to move towards a circular economy and the fallout from the coronavirus mean it is necessary to act now and act fast to save money and resources to build stronger businesses.

Commercial kitchens may vary in size and scope, but they share the objective of delivering great food as efficiently as possible. With time and money usually at a premium, poor waste management has a big impact on gross profit, and it can also negatively affect reputation and business opportunity.



What's the impact?

Wasted food and money



The UK foodservice industry is responsible for [1.1 million tonnes](#) of food waste a year, [75%](#) of which could have been eaten. Food waste also fuels climate change: if food loss and waste were a country, it would be the [third largest](#) greenhouse gas emitter in the world.

According to the Sustainable Restaurant Association, for every meal eaten in a UK restaurant, nearly half a kilo of food is wasted – through preparation, spoilage and what's left on the plate. It is believed food waste [knocks £1](#) off the value of every meal served.

Blockages and fines



According to some estimates, more than [70 percent of drain blockages](#) within a commercial kitchen are caused by the build-up of food, fats, oils and grease (FFOG) generated from washing pots, pans and plates. Approximately [15ml of FFOG](#) enters the waste stream for each plate of food. This means that for every 100 plates, around 1.5 litres of FFOG goes down the drain.

Water UK estimate that sewer blockages caused in part by fat, oil and grease costs the UK water industry approximately [£100M per year](#). Around [70% of commercial kitchens](#) have no equipment in place to tackle FFOG and therefore risk a hefty fine or operational issues related to blocked drains.

Energy and carbon



Commercial kitchens are high energy users; according to some estimates, consuming roughly [2.5 times more energy](#) per square foot than any other commercial space. Of that, the Carbon Trust believes [only around 40%](#) is used in the actual cooking of food. Instead, much of the energy is wasted as it disperses into the kitchen. Consequently, Foodservice Consultants Society International (FCSI) estimates that energy savings for kitchens investing in greater efficiency could be as high as 40%, equating to [3%-6% of operating costs](#).

Water



Restaurants rely on water, using it plentifully in food prep, cooking, cleaning and pot wash, not to mention customer toilets. Because water is perceived as plentiful in the UK and many kitchens are unmetered, there is little incentive to reduce water use.

Nevertheless, awareness of global water scarcity and its potential impact on businesses – particularly those based on food – is growing. Customers want businesses to be responsible with all resources, and water and sewerage can amount to [2% of an average turnover](#). [Business in the Community](#) also calculates that savings of 30-50% can be achieved by investing in no-cost and low-cost water reduction techniques and technologies, so acting on water is a no brainer.

Waste



It is estimated that the UK generates more than [41 million tonnes](#) of commercial waste per year. 2015 figures also estimated the total amount of waste including food, packaging and other ‘non-food’ waste, produced each year in hospitality and foodservice outlets was [2.871 million tonnes](#).

The cost for getting rid of this waste soon adds up. [Bin hire and collection](#) costs typically start at around £160 per 120 litre bin annually. Added to this are landfill taxes of £91.35 per tonne and admin fees, plus waste transfer costs at anywhere between [£12 and £250 per tonne](#).

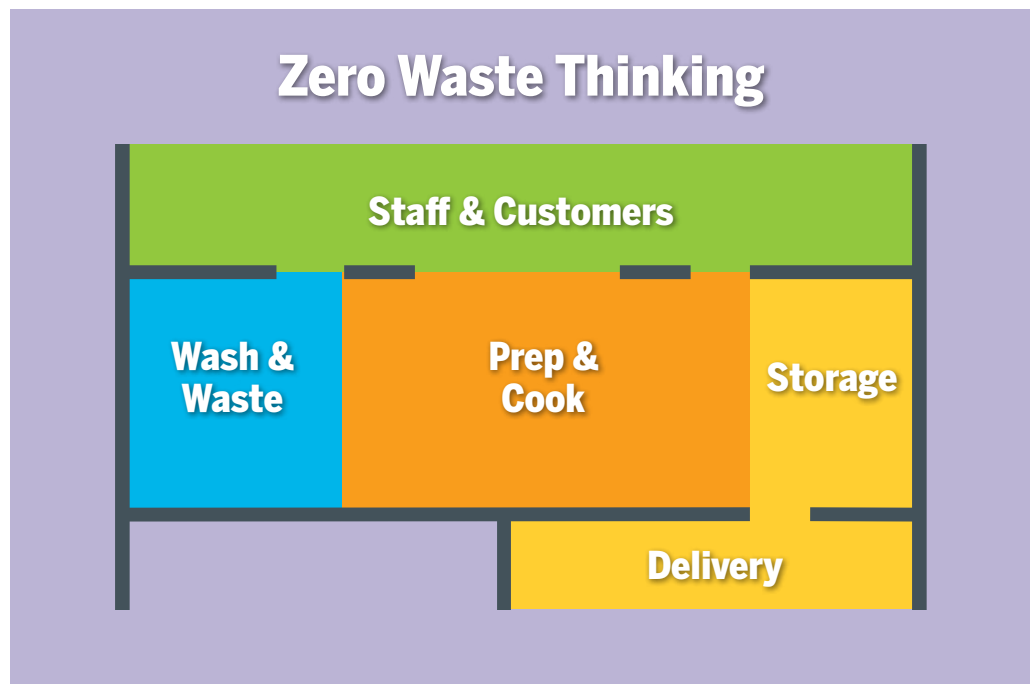
240 litres of general waste or dry mixed recycling is equivalent to about [10kg in weight](#) and businesses are charged an additional 17p per additional kilogram over this allowance. An approximate price for general mixed waste could be around [£170 per tonne](#). With most foodservice sites using scores of bins and multiple collections per week, binning rubbish can be very costly.

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Water, energy, waste: people are beginning to move away from acting on price and costs to think about climate change and how much you could save in services by taking a long-term view by investing in more sustainable practices and equipment.”

Paul Anderson, Managing Director, Meiko UK

Time to take action



There is no escaping it: Waste is wrapped up in profit and loss, but careful consideration of your systems and kit can transform wasteful practices into efficient processes, saving time, money and precious planetary resources.

In this guide we'll be looking at waste in a number of forms and highlighting the kitchen hotspots where waste is prevalent and can be targeted. We'll be shining the spotlight on food waste, looking at ways to tackle packaging waste, finding methods of preventing waste of energy and water, highlighting the issues around Food, Fats, Oils and Grease (FFOG), reducing waste of chemicals and disposables and thinking of techniques to streamline processes and conserve valuable staff time.

These tips and best practices – many of them low or no cost and easy to implement – can have a startling impact, not only in the amount of waste you're producing, but also in your bottom line.

From **zero-waste thinking** to **delivery and storage, prep and cook, wash and waste**, and **staff and customers**, it is time to design waste out of foodservice kitchens.

Ideally, minimising waste should begin at the design stage of a kitchen. However, the tips we share here can help you make the most of your kitchen, whether you are working with an existing space or designing from scratch; helping to create greater efficiencies of layout and workflow to minimise waste in every corner.

1. Zero-waste thinking



Design waste out from the start



The design process is moving from CAD (Computer Aided Design) to BIM (Building Information Modelling) making it possible to play around with layout to find ways to design out waste. BIM creates a 3D image of the kitchen and allows equipment and services to be moved around in a virtual environment, eliminating problems before the kitchen is built so workflows and processes can be more easily visualised and fine-tuned. The system provides a spreadsheet of data to accompany the drawing, with equipment representations showing size, weight, and other attributes, allowing designers to calculate energy loadings and to optimise the equipment accordingly.

The Foodservice Equipment Association (FEA) has a free BIM library for manufacturers to add their product information to, and for any designer to download, which can help building managers understand their future waste outputs and plan accordingly. For example, by understanding the drainage on a dishwasher or combi oven and adding the appropriate grease traps.

This is also the time to consider innovations and resource saving features that should be designed into the fabric of the building, like metering, grey water harvesting, water treatment, food waste disposal, renewable energy, low energy heating, cooling and lighting.

“

“The great thing about equipment is wherever there is a problem, there is an equipment solution. The industry is very strong on innovation, and there is always something new coming through to manage the problems of running a foodservice operation.”

Keith Warren, Chief Executive, FEA

Avoid ‘supersizing’ kitchen and stock rooms

When looking at kitchen design, consider the space that is required and don’t ‘super size’. An oversize kitchen takes more effort to maintain, needs more staff to operate and more chemicals to clean. Designing to conserve space in the kitchen presents an opportunity to put another table out front, and customers around it.

Additionally, although it can be tempting where space is available, do not have an oversize store cupboard, pantry or freezer/chill room. Large storage spaces can fuel a desire to keep them stocked, risking waste through spoilage. In addition, a large chill room is either working hard to chill down a recent delivery or working at half capacity because stock is running down. It is better to keep smaller spaces and manage stock rotation to prevent waste of energy or food.

Think kitchen ergonomics

Take a bird’s eye view of the kitchen. Look at your menu and your levels of production and think: “What is the optimum, most efficient way of producing this?” Look at the movement of food around the kitchen from the delivery of ingredients, through prep, cooking, plating, service and returning plates/plate waste. What can be improved?

Think about how to streamline workflows so staff are not crossing each other, and food is travelling the least distance from delivery and storeroom to preparation, cooking and customer. This exercise can help create zones within a kitchen separated by interaction with the food. This can introduce ambient, chill and heat areas which helps ensure cook and chill equipment is not competing and reduces the risk of any cross contamination. This is also beneficial for allergen control.

Consider where bins are sited: are staff able to easily segregate waste into the appropriate streams, and what is needed to make this easier, such as food waste caddies at prep stations, and [tracking sheets](#) at the bin stations so that different waste streams, such as plate and prep food waste, can be monitored and managed.

When the design is near finalised, you could even do a physical mockup with zones marked out on the floor with tape, and staff enacting their roles to see what can be changed and improved to save time and resources.

Take a collaborative approach



The industry will get further, faster on sustainability by working together, so collaborating and joining forces is key. The industry is making strides to become more sustainable but needs to step up its actions to meet the [commitments](#) of the United Nations Sustainable Development Goals (SDGs) and the Paris Accord.

Fronted by [WRAP](#), many foodservice operators are tying their colours to the mast of [Courtauld 2025](#) and the [Food Waste Reduction Roadmap](#); committing to [‘Target, Measure, Act’](#), [Guardians of Grub](#) and the [UK Plastics Pact](#). These aim to make the wider food and drink industry more sustainable by tackling packaging and food waste, and there are many free resources and tools [available](#) to facilitate this. Other forums and working groups, such as [Champions 12.3](#) and [Footprint Forum](#), are also invaluable in building networks to find joint solutions.

Use tools to understand use and waste



Knowledge is power, and measurement usually leads to management and effective action so harness the tools available so you can understand what is happening where, set targets, take action to tackle it, measure progress, feedback and respond.

In large kitchens and hotels, energy and environmental management systems help monitor and control energy usage, potentially optimising energy by managing peak flows via demand/supply regulation.

Building management systems are less technical and can be used across a property portfolio to centrally manage heating, lighting, thermostats, ventilation etc, taking that responsibility away from staff and more effectively managing energy use.

There are many systems available, and the UK Government is working with a range of innovation partners to develop an array of [energy management apps and smart meters](#). This should enable hospitality organisations to have a better understanding and control of their energy use and wider business operations.

When it comes to food waste, there are free tools such as the [Guardians of Grub toolkit](#) and the Wise Up on Waste app plus paid-for high tech food waste systems such as [Leanpath](#), [Winnow](#) and [Chef’s Eye Tech](#). These offer a way to measure food waste that suits your operation and budget. The key is to start measuring different waste streams, such as plate, prep, and spoilage, because this inevitably identifies hot spots and leads to reductions.

Many of the tech systems also measure other impacts of food waste apart from volume, such as carbon and food value, which can also be incredibly helpful. Edinburgh University’s Business School is also developing a sustainability tool that will allow caterers to better determine what their carbon impact is.

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“We need to better understand and benchmark where we are now before we can see where we have to go.”

**Jayne Jones, National Chair of ASSIST FM Food and Drink,
Commercial Manager Argyll and Bute Council**

Site waste stations carefully and use caddies



Consider the movement of waste around and from the kitchen and work to make it more efficient. Have multiple caddies dotted around which can capture and record different types of waste and be removed regularly to a waste station where bins for recyclable items, food and general waste can be sited for sorting, and [logging](#).

Colour code bins (e.g. green for food waste, yellow for plastic recycling etc) and put out visual signage making it clear to all what goes in which bin. This has helped Greene King to massively increase their recycling segregation and food waste recycling in general, significantly reducing waste to landfill and waste management costs (see **Prioritise waste collection and segregation**).

Consider the journey of bins out to the main waste collection area and site the waste station appropriately to minimise spills and clutter. How long will staff be away from the kitchen as they move the waste and how heavy are the bags they are being asked to carry? Would other waste management systems, such as Meiko's [food waste recycling systems](#), which save staff time and reduce carbon associated with food waste collection be more appropriate? These types of systems can be more efficient because they allow staff to dispose of food waste into kitchen-sited input stations which use pump or vacuum systems to transfer the waste to odour free holding tanks which break them down to reduce volume prior to collection.

“

“There are lots of different languages spoken in the kitchen, so, often using images and pictures can be a more straightforward way of explaining what goes in each bin.”

Aisling Hayes, Sustainability Consultant, The SRA

Stay ahead of incoming legislation

A new bill on waste from DEFRA will compel local authorities to separate all dry mixed recycling (DMR) by 2023. All councils will be legally obliged to recycle glass bottles and jars, paper and card, plastic bottles, pots, tubs and trays as well as steel and aluminium cans.

Separation should take place at property level so waste needs to become everybody's concern.

If you are not yet managing this on site, find out why not, and consider how it can be achieved. Enlist your waste management contractor to help, and include clauses for measuring, monitoring and reporting food waste in tendering – sample clauses can be found [here](#). Set targets for waste reduction and KPIs for individuals. Measure and report their impact and reward teams when they hit their targets.

Key resource

Equipped for the Future

An action plan to facilitate greater uptake of energy efficient catering equipment in foodservice



Equipped for the future

This [Footprint/Hoshizaki action plan](#) sets out clear action points and insights for operators and manufacturers/vendors to facilitate the greater uptake of energy efficient catering equipment in foodservice.

Prioritise efficiency and whole life costing

Factor in efficiency when buying new, and prioritise it in planned replacement cycles, using whole life costing to provide the business case for investing in sustainable features such as energy and water efficiency which keep running costs down even if the initial capital expenditure is higher. Look at end of life – what will happen to the equipment once you have finished with it? Utilise the [Equipped for the Future](#) action plan as a guide to overcoming the barriers to sustainable equipment.

Commercial cooling and refrigeration is subject to Minimum Energy Performance Standards (MEPS) which means that it is easier to compare models and manufacturers to prioritise energy efficiency. Warewashers have no such standards, but the most efficient passthrough dishwashers can save more than 50 per cent of operating costs over the course of their lifetime, so challenge suppliers on their credentials. For example, the [Meiko M-iClean H dishwashing machine](#) washes quickly, economically and ergonomically with an 80 per cent reduction in humidity and up to 21 per cent lower energy consumption, plus reductions in the use of chemicals and water, compared to the previous Meiko generation of machines.

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It's about investing in the right equipment you need to do the job and that can mean spending more. But what you'll get are the features and benefits over the lifetime of the equipment, so take a lifecycle cost analysis approach, and not just the capital costs.”

Keith Warren, Chief Executive, FEA

Assess fixtures, fittings and end of life

Take the time to look at all the equipment in the kitchen: from lighting to cooking appliances, hobs, refrigeration, HVAC and warewashers, as well as taps and toilets. Think about their energy, water and chemical efficiency. What quick wins could you achieve by switching to LED bulbs or sinks with sensors or knee bar activation?

Think about end-of-life of appliances and cabinetry. How could circular or modular design build in adaptability and help future-proof the kitchen? Could pay-as-you-go schemes like the one Winterhalter operates on their eco efficient dishwashers help achieve your targets? What elements can be recycled or find a purpose somewhere else once their use in your kitchen is ended?

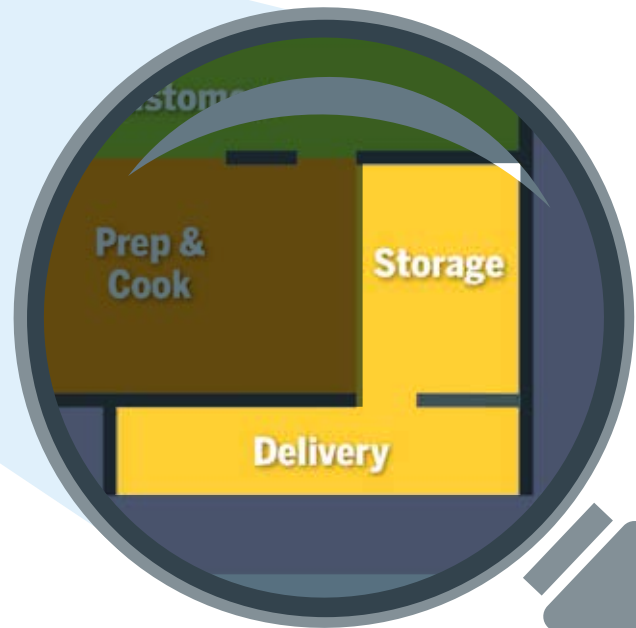
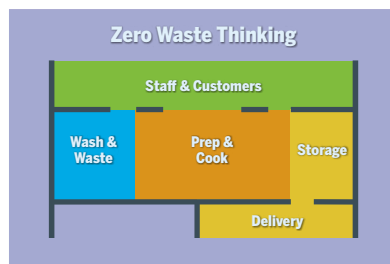
Manufacturers of commercial kitchen equipment are obligated to provide the facility for reprocessing the equipment at the end of life under the WEEE directive, notes the FEA. This means manufacturers are increasingly making it easier for equipment to be serviced and repaired, so when it ends its life with one owner, it can be refurbished and go back into the market.

Capture waste heat

Kitchens generate a lot of heat and most of that is wasted, being vented outdoors, but modern heat capture technology can put that heat to use in other parts of the kitchen. For example, Wahaca takes excess heat from their fridges and uses it to heat water in the customer toilets.

McDonald's found that about 30% of the energy used in its restaurants is related to their heating, ventilation and air conditioning systems, so the fast food chain has focussed on installing new systems or technology to increase efficiency such as inverters, air speed motors and air source heat pumps. As an example, air source heat pumps typically use captured heat to warm water elsewhere and can be [five times more efficient](#) than a traditional heating system based on fossil fuels or electricity.

2. Delivery and storage



How you order and store your food can have dramatic impacts on your levels of waste, including packaging and food lost from spoilage. The tips here incorporate elements of design that can help you minimise food lost to use-by dates, as well as optimising energy in storage. Working with suppliers can help to reduce plastic and packaging waste and find solutions to chemical waste.

Keep tabs on your stock



Keep an accurate stock count so that items aren't re-ordered when they are already in the cupboard. Run data analysis to keep tabs on customer numbers for the time of year, week and month. Some suppliers can help with this. Run promotions to help run stock down.

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“We have a central team working on a sales forecast based on the time of year, the weather, the promotions and everything else. And then at a local level, the business manager or the franchisee would add to their sales projections based on whatever is happening in their local area.”

Helen McFarlane, Sustainability Consultant, McDonald's

Check regular orders and add caps



Ordering can be a chore; therefore people embrace shortcuts that make it easier. This can mean repeat orders get locked in, delivering staples like bread, milk, eggs and vegetables, every few days, even when they are not needed. Keep an eye on levels of these stock items and cancel automatic re-orders when they are not required.

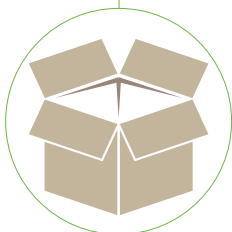
Put caps in place to prevent accidental over ordering and keep company guidelines on the holding of stock for recipes to no more than ten days. If a site is holding stock for 20 days, ask why.

Adopt flexible ordering

Work with procurement and your suppliers to build more flexibility into your ordering. Can you take surpluses when suppliers have gluts, particularly for fresh produce? Can you utilise less popular cuts, or 'wonky' fruit and vegetables to encourage nose to tail and root to shoot eating so that nothing is wasted from farm to fork?

Look at pack sizing to buy ingredients in the right amounts for your kitchen and to help reduce waste potential. Look at frequency of delivery. Can items be ordered or cancelled the day before a delivery to ensure stock is running at optimum levels?

Work with suppliers on packaging



Suppliers know that packaging is a bugbear which kitchens are trying to minimise. [Research by Brita Professional](#) found that hospitality operators are increasingly looking to their suppliers to help them overcome sustainability barriers and meet their green targets: 42% of businesses are keen to partner with sustainable suppliers. Join industry commitments and working groups, such as the [New Plastics Economy's Global Commitment](#) and the [UK Plastics Pact](#), to pool effort and find joint solutions. Look at ways your suppliers can help to limit packaging and see whether they can deliver in reusable crates (returnable assets) rather than cardboard or plastic.

Request they use materials that can be recycled or sustainably managed through the waste management available to you – just because a material can be recycled or composted does not mean it will necessarily end up in the right waste stream if your contractor cannot process that material appropriately. Build these specifications into supplier tenders.

Check on supplier logistical efficiency to ensure accurate packing of crates and boxes on delivery trolleys and cages to maximise loads and prevent additional road miles. Meet deliveries so that packaging can be removed as it comes into the kitchen, switching product in the goods area into gastronorm trays or crates, leaving packaging in the recycling or to be removed by the supplier. This helps to keep the kitchen clear with packaging out of everyone's way.

Work with suppliers to have optimum packaging that ensures maximum shelf life on foods held at chill, ambient or in hot cabinets.

On appliances, ensure packaging is minimised or at least recyclable. Ask if it can be taken away by the supplier once the appliance has been unpacked.

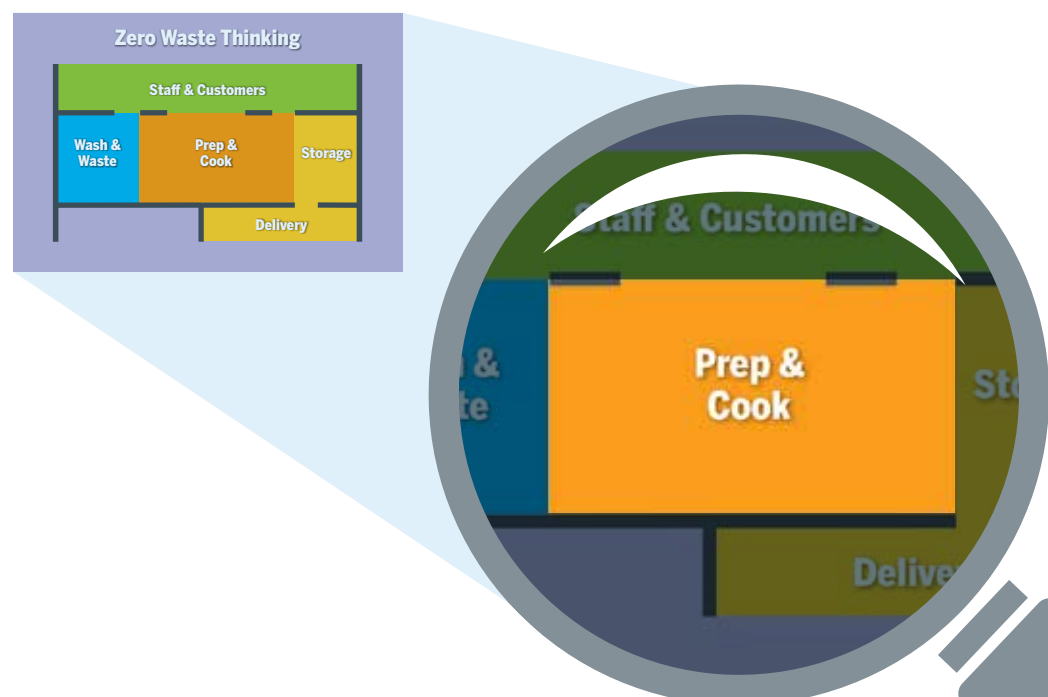
Take care with compostables

Conduct due diligence on any compostable or biodegradable packaging or products to check they will work with your uses and waste management options. The UK Plastics Pact [guide](#) can be helpful in aiding this decision making. Compostable and biodegradable are not the same thing: compostables should be certified to decompose under specific conditions, however biodegradable has no fixed timeframe to break down.

Compostable packaging may not be suitable for inclusion in food waste collections because it requires industrial composting conditions. According to WRAP, industrial composting conditions require a high temperature of 55-60°C, combined with humidity and oxygen, meaning it should be separated from food waste and sent for specialist treatment. However, many local authorities do not have the facilities to process it.

The Sustainable Restaurant Association (SRA) notes a massive rise in compostable packaging, which cannot always be recycled because the infrastructure may not be available. This means compostables can go to incineration, or worse still, landfill where it will emit methane. They say avoid knee jerk reactions and try to get as much information before choosing materials to assess the relative trade-offs.

3. Prep and cook



A large proportion of waste in the kitchen takes place around the actual preparation and cooking of meals. The design of the prep and cook areas can play a huge role in the minimising of waste food, energy and water, as well as helping to prevent food, fats, oils and grease (FFOG) from entering drains. Innovations in tech are creating new ways of storing and cooking food as well as building greater efficiency into kitchen equipment. As the footprint of the kitchen shrinks over time, this is becoming increasingly important.

Key resource



Food needs YOU

[Food needs YOU](#) has tonnes of tips and tricks to help tackle food waste for every job role, from head chef to kitchen porter.

Adopt ‘Target, Measure, Act’ as your mantra

Not only does food waste cost money, but it is integral to climate change mitigation too. If food loss and waste were a country, it would be the [third largest](#) greenhouse gas emitter in the world (behind China and the USA), so tackling food waste is a concrete way to address the climate crisis. Businesses also have obligations: the waste [hierarchy](#) sets out legal responsibilities and the importance of prevention.

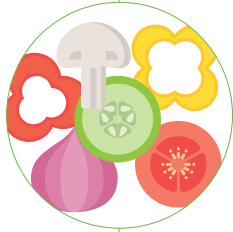
Adopt a [Target, Measure, Act](#) approach which sets clear timelines, targets and measures to show impact. This has a short-term aim of reducing food waste by 20% by 2025 and is aligned with the Sustainable Development Goal 12.3 target of halving food waste by 2030 and reducing food losses across the supply chain.

Design menus to save food

Menu design can dramatically influence food waste, from the number of dishes on offer, to how often the same ingredients are used. Storing a wide variety of ingredients often leads to food waste, for example where a particular ingredient is used in only one dish.

Look at ways to use ingredients across several dishes and find creative ways to use leftover ingredients, offcuts and prep waste. Create dishes that use up waste, for example turning leftover salad or garnish into pasta or pizza sauce or making desserts or croutons out of stale bread. You could even harness the enthusiasm of customers to help think about ways the menu could minimise waste, as Zero Waste Scotland has done by getting pupils to design meals that think about how they use food waste. More tips on menu design, as well as the impact of other job roles on food waste, can be found in [Food Needs YOU](#).

Minimise prep waste



A lot of fresh food ends up in the bin during prep but there are many [ways](#) to minimise this. From ensuring knives and peelers are sharp to get a fine peel, to using peelings and bones in stock or turning fruit peels into glazes or marmalade, a little bit of creativity can create some fab new flavours whilst cutting back on food waste.

For example, a food prep machine used to slice items such as lemons could save a fortune in terms of consistent output in a multi-site group. It can increase the number of slices achieved and could save significant volumes across the year.

“

“With one in six meals thrown away, food waste is the kitchen’s biggest hot spot. The industry is taking action, but a lot of people underestimate the food waste they generate as they do not have the correct tools to measure it. We need to move farther and faster to meet [Courtauld 2025](#) and the [Food Waste Reduction Roadmap](#) targets to reduce food waste by 50% by 2030, and to address the climate crisis.”

Paul Anderson, Managing Director, Meiko UK

Check portions and over-production



Waste can occur when too much food is produced to cover a service. One way to tackle this is to switch to cook-to-order towards the end of service. This can also help keep quality high when turnover is slower.

Tech solutions like a camera on the servery can help chefs see which items need refreshing, or good communications with front-of-house on numbers arriving can help manage quantities. Do a portion test at the start of service to check if too much food is being served, which is then coming back as plate waste.

You could consider offering takeaway meals to customers at discounted prices, as Greene King has done with its carvery buffets. In partnership with [Too Good To Go](#), people can buy prepacked roast dinners at a discount at the end of service. So far, this scheme has proved to be a huge success, mitigating food waste on a huge scale and it does not appear to cannibalise existing customers.

Surplus food can also be redistributed via local charity partners, or via [OLIO](#), [FareShare](#), [Company Shop](#), [Too Good To Go](#) or [Plan Zheroes](#). You may need to mix ‘n’ match to find the redistribution system that works for you, and some even bring their logistics team on board to help with issues like freezing.

Switch from gas to electricity

Although many chefs are used to cooking on gas and can be reluctant to change, most who move to induction hobs are converted as electricity can be more efficient and help to contribute to a more pleasant working environment. According to US Department of

Energy [tests](#), gas equipment is roughly 44% efficient, compared to induction which is over 74% efficient, though advances mean that these figures are likely to be even higher now.

Much of the heat from cooking with gas heats the kitchen environment rather than food and increases room temperatures which can lead to uncomfortable working conditions and contribute to staff turnover and absenteeism. The sandwich chain Philpotts reported a [10% reduction](#) in staff turnover when they switched to induction.

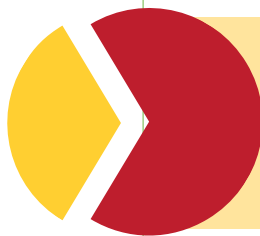
Induction hobs are only active when the pan is in contact with the hot plate, meaning that hobs are only used when needed, rather than being left on by default. This can dramatically reduce the energy needed to cook, as well as the heat in the kitchen and therefore the need for costly air con/ventilation. Contact grills are also only on when needed.

Switching to electricity is also beneficial as a low carbon power source. Electricity can be produced and purchased from renewable energy sources: [40 per cent](#) of the UK's electricity is currently powered by renewables, and this proportion will continue to increase.

If electricity is not an option, it might be worth investigating hydrogen as an alternative to natural gas. When you burn hydrogen, the by-products are heat and water so some manufacturers are developing equipment that runs on this fuel.

Work with staff to change behaviour

For years it was standard in kitchens to fire up burners, grills and ovens as soon as staff entered the kitchen, or to leave taps running unnecessarily. Even now, staff may regularly turn equipment on hours before it is needed. Deploy equipment that will switch to stand-by when not in use and work with staff on behaviour change to adopt energy-saving practices that include only switching on equipment when it is required. In the past ovens might have needed half an hour to reach temperature, but today's appliances heat up in minutes



McDonald's worked with their energy partner MITIE on behaviour change training for staff which helped reduce their energy use by a third. The company is now planning a new programme with Mitie to reflect the changes in operations and opening hours as a result of Covid-19.

Take advice from experts



Advances in equipment can be hard to keep pace with, so work with suppliers or other equipment experts to find out what is on the market that meets your needs.

Optimise equipment to suit your processes and menus; and have cooking devices that match production. Modern cooking equipment is often much more efficient. Combi ovens can cook all the elements of a meal at once.

Designed with waste in mind

Designing Waste Out Of The Commercial Kitchen Environment

Combi kettles and bratt pans can be extremely versatile so investigate whether there are innovations that could save you time, running costs, and the need for a range of different pieces of equipment, especially when purchasing new kit. Consider a cooking technique that delivers better yield, for example: cooking meat slowly overnight can mean less shrinkage, delivering more slices, boosting profit and reducing energy costs.

Innovations like the [Evereo 'hot fridge'](#) can keep food at serving temperature for days with no loss of quality, removing the need for blast chillers and reheating, and improving prep and service turnaround times.

Finally, plan a proper maintenance schedule so that equipment runs optimally. Even something as simple as limescale build-up on a combi oven can impact efficiency. A water filter can help prevent this.

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Look at the number of staff needed to operate the equipment and operating practices, because investing in higher specification and higher functionality can reduce your staffing costs or allow staff to add value elsewhere.”

Keith Warren, Chief Executive, FEA

Consider a smart kitchen



Increasingly equipment in kitchens is smart and connected, monitoring itself to optimise performance. As the Internet of Things (IoT) develops, more systems will connect, allowing chefs and managers total oversight and management of their kitchen; staying on top of peak performance and planned maintenance to avoid breakdowns and ensure everything runs at optimum efficiency.

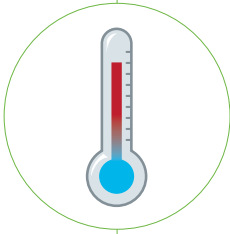
For example, Meiko warewashers include a smart control function which allows users to access data on cleaning procedures, water changes, repairs, etc. and can integrate into a network, link up with multiple units, and connect machines to a control room or facility management system. They can also use Bluetooth connectivity to transmit service data to a PC or mobile device to assist with diagnostics.

Even FFOG collectors can be connected: for example, Kingspan's SmartServ Pro can be accessed by phone or pc, providing information on wastewater to monitor FFOG collection and alert operators when it needs emptying.

Watch water when you prep

It is common to run taps when prepping veg or defrosting meat or fish but doing this is literally pouring money down the drain, especially as you pay for water twice: once when it comes out of the tap, and again as waste water. Instead, encourage sous chefs to run a sink or to use a basin, and consider whether sensor, trigger or pedal tap fittings might be helpful to prevent taps being left on. Consider using an alternative to potato rumpers which dump 6kg of waste into drains for every 25kg bag of potatoes.

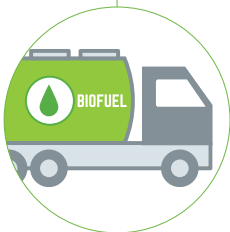
Create temperature zones



Kitchens are often small, meaning chillers might be located beside ovens, making them work harder and wasting energy. Creating zones where food is handled in cook, chill and ambient conditions can help equipment run more efficiently, as well as help to avoid issues of cross contamination.

Where it is impossible to do this, look at innovations in cook and chill equipment. For example, small rapid heat ovens and grills, or chiller drawers which go under counter and which can be much more effective at keeping food cold without leaching cold air into the kitchen when they are opened.

Turn FFOG into funds



It is important for restaurants to capture all the grease from sinks, grills and ovens using the appropriate bit of kit, such as traps, collectors and chemical degreasers. Water companies can often help you identify what would work best for your needs. Collection is usually preferable, and this has the added advantage that oil can be sent for processing to biofuel which can provide a small income.

It is important to ensure staff appreciate the need to regularly empty and maintain the FFOG collectors and have the skills to do so. It is also necessary to tackle the oil that collects in extractors and certain steam ovens, which may discharge directly to drains.

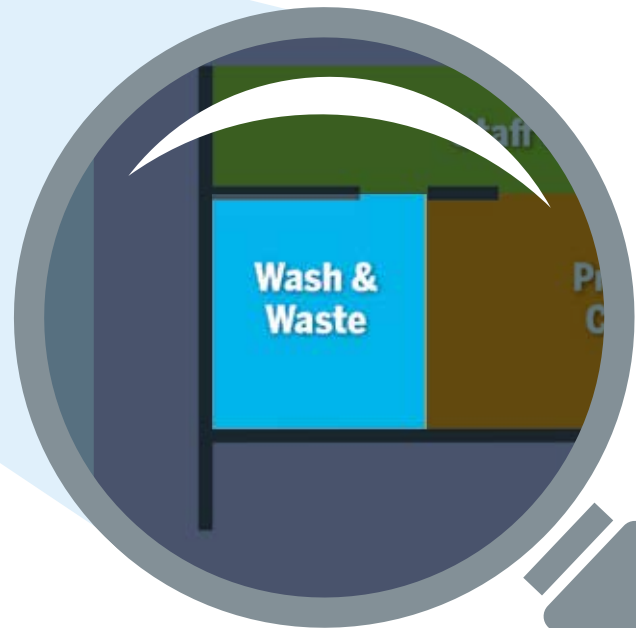
Using less oil in the first place can also help save money and resources. Low Oil Vats use a third less oil than regular fryers so take less time and energy to heat up. Often, they automatically filter at the press of a button. McDonald's use these and when it's time to change the oil, it is pumped into a storage tank, transferred to a tank under the delivery vehicle, and taken to the Distribution Centre. From there, it is collected and processed into biofuel, which is then used to run the delivery fleet. The grease is also turned into biofuel. The fat therefore never goes anywhere near the sinks or drainage system.

Consider FFOG from every angle

Rinsing meats and fish or draining tins can introduce FFOG at the prep stage. Combined with starch from rinsing rice and pasta or draining potatoes and you have a gluey mess in your drains.

Menus often change but chefs rarely consider the impact that has on practices in the kitchen beyond the different types of foods that need ordering or the shelf life of those ingredients. Take a minute to also contemplate the impact different sauces or cooking methods will have on the fats and grease that will be produced and think about how you will deal with these.

4. Wash and Waste



The pot wash area is a waste hot spot: a magnet for saucepans, baking sheets, gastronorm trays and dirty tableware. Because a large volume of food waste is dealt with here, there is a good chance that other waste bins may sit here too. Make sure your waste separation is good to avoid contaminating waste streams which will then end up in landfill. Your best ally in treating waste responsibly is your kitchen porter (KP) so invest time in their training and empower them to take responsibility.

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“Good waste management is about separation at source and treating it as a resource to be used somewhere else, so put systems and processes in place that allow this to be a feature of the kitchen.”

Keith Warren, Chief Executive, FEA

Get your kitchen metered

Very few foodservice businesses separately meter the water or energy in their kitchen, so it can be hard to tell how much you are using and impossible, therefore, to benchmark, monitor and reduce. Measurement is management so to be as effective as possible in reducing your energy and water use, you need the data at your fingertips.

Install submetering for the kitchen and insist water and energy companies give you regular and accurate readings. This enables you to identify anomalies more quickly so you can tackle issues like leaks, malfunctioning equipment or poor processes. And, if available, push for smart meters so you can get instant readings, and compare usage to identify what causes spikes and reductions between different time periods and sites.

Set targets for energy, water and food waste



Once you have got a handle on how much energy, water and food waste your kitchen is using each month (see Use tools to understand use, Adopt Target, Measure, Act and Get your kitchen metered, above), it is time to set targets, measure and act. Set realistic targets for reduction and set out a plan to achieve this, such as using the [Food Waste Reduction Roadmap](#) to meet the SDG 12.3 target of a 50% reduction in food waste by 2030.

To formalise energy reduction across the business and do your part to meet the Paris Agreement 2° cap on climate change, set a [Science Based Target](#) for carbon emissions. Consider nominating a team energy champion and building in employee engagement programmes. Work out how capital equipment feeds into these targets, and make sure you flow this into your procurement processes.

Make water conservation standard

Busy staff will leave taps running and even a few seconds can add up to litres of water down the drain. So, train staff to be water efficient and explain why they should care about water. Install sensors on taps or knee bar activation so taps turn off automatically and cannot be left on when not needed. Fit aerators or low flow taps to reduce the amount of water flowing in kitchen sinks and customer toilets.

It is calculated that measures such as water-saving products, infrared technology and staff training help foodservice outlets save an average of [£1,068](#) per year. According to Waterscan, behaviour change to restrict water waste can reduce water bills by up to 30%.

Macerators – which are now banned – and waste disposers tend to guzzle water and can create drainage issues so check what is being used in your kitchen and replace and update where necessary. Innovations such as the Meiko [WasteStar](#) are solutions that do not impact waterways. In the WasteStar system, organic waste does not have to be carried long distances: a vacuum pump sucks the waste into an odourless collection tank so it can be collected and converted into biogas.

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“People don’t understand that with a running tap they’re paying for water twice; not just for the water but the sewage service as well, plus the energy required to pump it through the system.”

Mike Hanson, Head of Sustainable Business, BaxterStorey

Key resource



Why care about water?

This [Footprint/Meiko resource](#) is the go-to-guide to responsible water use in foodservice.

Use warewashers correctly

With busy kitchens and high staff turnover, it is important to check colleagues are properly trained on dishwashing equipment including dosing, operating and cleaning to ensure wash cycles are optimised and are not interrupted as this often means items need cleaning twice, wasting water, energy and chemicals.

Staff should know how and when to maintain equipment because incorrect use can waste water and impact staff retention if equipment regularly breaks down and waiting staff are called in to wash up.

Many modern warewashers use their heat and water as efficiently as possible but need to complete their cycle, so avoid opening the door too soon. Some use smart tech and can alert manufacturers to issues before operators become aware of them. Retrofit water-saving devices to pull-down pre-rinsers or dishwasher arms to reduce water use.

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“Running half empty dishwashers is a huge waste of water, energy and chemicals. Let the dirty dishes stack up and clean them in full batches, so you’re reducing the number of washes you need to do and saving on consumables.”

Paul Crowley, Senior Marketing Manager, Winterhalter UK

Invest in your kitchen porter (KP)



KPs can be one of the most important allies in the kitchen in terms of monitoring and preventing waste. Often, they are responsible for operating and cleaning machines, preventing FFOG, monitoring food waste, dealing with store cupboards and deliveries. If they know what they are doing and they know why preventing waste is important, they could make a huge difference. Give them responsibility and invest in their training and it will have a positive impact.

Do preventative maintenance



Operate a planned maintenance schedule on sinks and equipment to stay ahead of problems – like leaky taps – that can cause waste. Don't cut corners or allow staff to – for example by taping the trigger on the pull-down pre rinse tap - or letting taps run when they are not needed.

Improve your heat recovery

Why run hot water from sinks and washers straight into the drain when that heat could be used elsewhere? Investigate heat recovery kit that can recycle that energy to another use. Some dishwashers take the steam from the final rinse/dry and use it to heat cold water for the next cycle, making the kitchen more comfortable for staff and saving energy.

Prioritise waste collection and segregation



Transparency and visibility of waste makes it everyone's issue so have different coloured waste bins and clear, pictorial signage to make it really simple, easy and visual for staff to understand where each kind of waste should go.

Greene King has found that having certain colours assigned to different waste types, such as green for food waste, and clear, visual signage and posters that show staff how to deal with waste, and the waste yard, has helped hugely. The 'rainbow bin' scheme has been credited with preventing contamination, increased waste segregation and has helped to reduce waste costs. This is key in an industry with a high staff turnover and rising waste costs. Food waste is also heavy, so it pays to have this kept out of general waste as these charges tend to be higher.

Segregating and tracking different food waste streams, such as plate, prep, and spoilage using free tracking tools like WRAP's [Guardians of Grub tracker](#) or the [Wise Up on Waste](#) app will enable the identification of what is happening where. Even just tracking this by monitoring how full an old oil drum is for each waste type will provide valuable data, whilst high tech systems such as [Leanpath](#), [Winnow](#) and [Chef's Eye Tech](#) can provide even greater detail and insight.

Dotting food waste caddies around the kitchen can help to capture these different types of waste which help staff to notice, act and minimise. It can be difficult to understand the impacts of waste so a visual representation in plates of food or cost to highlight what has been wasted will help staff see the issue.

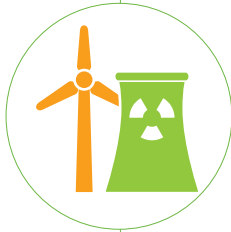
**Saving waste,
saving money**

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“Using WRAP's hospitality food waste figures, each 100kg, 240-litre wheelie bin contains £280 worth of wasted food, labour and utilities. Just 3.5% of that cost is disposal, yet as part of a total waste management solution, a restaurant increasing from zero recycling to 68% can save in the region of 43% on their waste costs.”

Dean Pearce, Business Development Manager, SWR Newstar

Turn waste into a resource



Separated food waste often goes to local anaerobic digesters where it creates energy for the grid but larger sites like resorts, corporates or shopping centres could manage their own digester, reducing the costs of waste removal and creating their own energy.

Biomass – homogenised pulped food and plant waste – can be used to create energy, providing a sustainable return. Grey water solutions and composters on the other hand, see any potential energy benefit from food waste going down the drain.

Technology is moving fast in this sector. BioMaster is the latest generation of food waste recycling solutions from Meiko; it takes all food waste including cooking oils and fats and even bones, creating a biomass product that is pumped to holding tanks for collection.

BioMaster takes all food waste, including a long list of foods that grey water and composting systems cannot, such as bones, shells (oyster for example), fats, oils, grease, flower stalks, soup, sauce and gravy.

BioMaster is more labour efficient than grey water and composting systems because it stops secondary handling and the need to separate out foods and send to landfill those that can't be processed.

BioMaster also delivers big labour savings because it replaces bins and stops the need for staff to take food waste outside in bags. It also means there is no need to repeatedly sanitize bins, clean up spills and saves space in waste storage areas. There are savings on bin bags.

Apart from a small amount of electric energy and water, there are no running costs; unlike grey water systems which require significantly more energy and often additional items such as chemicals, wood chips and enzymes.

Taking a whole life approach

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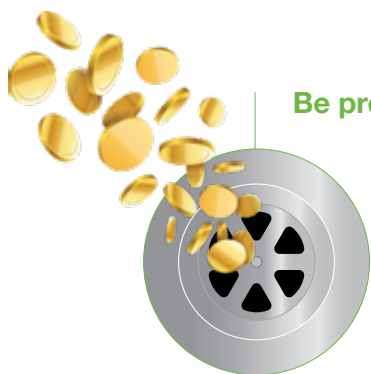
“Homogenising food waste, storing it for collection and then turning it into biogas offers what is the least labour consuming solution out of all the options.

“Solutions such as BioMaster cost more to buy initially than grey water systems, but their long life span, low running costs and ability to handle all waste, means these type of solutions provide the best economy as well as the best sustainable return in the longer ‘whole life’ calculation.

“This type of equipment will change the economics of the catering equipment industry.

“With regular maintenance, these solutions effectively ‘outlast’ the caterer’s conventional five or 10-year budget, potentially delivering benefits up to 30 years later.”

Paul Anderson, MD, Meiko UK



Be proactive at tackling FFOG

FOG can be collected by companies which turn it into biodiesel. Dewaterers take the water out of food waste, reducing the volume by around 80%. The remaining waste can be turned into compost for use on gardens. Solutions will be site specific but investigate ways you can make your waste work for you.

Thoroughly collecting FFOG is a vital task since restaurants found polluting the drainage network with FFOG can face large fines. Blockages in the drains can cause flooding outside or in the property meaning bad odours and toilets out of use. Fit grease capture units and fat traps on pipes including those from washing machines and warewashers. Remember floors get greasy so water from washing the floor also needs to go through a collector. Plates need to be wiped into the bin before washing so that oils and sauces are minimised in the washer. Physical capture and emptying of grease traps and oils is preferable to dosing with chemicals. Check in with your water provider who can offer free advice and a survey. Do not forget your decarboniser also discharges grease. (See also **Be proactive at tackling FFOG** and **Turn FFOG into funds**).



“At the heart of FOG management is staff training and good housekeeping, supported by an appropriate, well-sized, managed and maintained grease management system. This is something every foodservice establishment should have in place in order to avoid the chance of prosecution and large fines.”

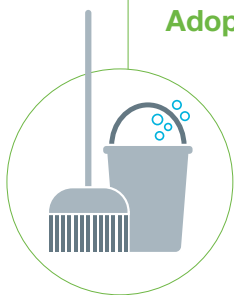
Stephen Williams, Network Protection & Enforcement Officer, Southern Water



“If you’re unsure about putting something down the drain, don’t, because the fact that you’re unsure means that you think there is a risk. Put a sign above the sink to say, ‘if you put oil down this drain it could cost us this much cash.’”

Claire Yeates, Waterscan

Adopt green cleaning methods



Cleaning can be a water and chemical intensive process, so ensure staff are fully trained on correct dosages and cleaning procedures to prevent excess chemicals or water being used or entering water courses.

Eco-cleaning systems such as microfibre clothes, ionised water systems and electrostatic disinfecting can help avoid potentially toxic chemicals. Microban coatings on walls prevents bacteria developing and will wash with mild soap and water.

Plan cleaning schedules to avoid the same spot being cleaned multiple times unnecessarily. Mops or water brooms can be used instead of hoses to clean floors.

Designed with waste in mind

Designing Waste Out Of The Commercial Kitchen Environment

When using chemical systems, consider using concentrates for cleaning rather than large bottles of ready-to-use cleaner. Using concentrates that you dilute with water on site as and when required helps eliminate waste miles, plastic bottles and chemicals. Make sure staff know and stick to the correct dilution ratios.

Modern dishwashers can also control their own dosing as well as filtering and reusing water, minimising the use of chemicals and water.

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Shipping full containers of conventional cleaning chemicals is essentially just moving water around the country unnecessarily. It is much better to use concentrated chemicals, which you dilute with water on site. As well as being a ‘greener’ solution, they are usually more economic to buy.”

Paul Crowley, Senior Marketing Manager, Winterhalter UK

5. Staff and Customers



Getting your staff on board with any bid to reduce waste is essential as they will be the ones who make the biggest difference, but customers have a role to play too. Today's consumers are looking to support responsible businesses so communicating your waste-saving efforts will go a long way toward building loyalty and customers can help reduce waste, for example by ordering portion sizes that match their appetite.

Dialogue to build relationships



“Direct engagement with our customers is a huge opportunity for us. It helps us get a quality meal to as many children as possible. We engage with them through activities such as discussing climate change. This allows us to clearly demonstrate that we listen to what our pupils want, and that we follow that up with action. This helps us build those better relationships across the food chain from pupils to local suppliers and supporting local economic growth and the circular economy, which in turn improves the quality and cost of the meal on the plate.”

Jayne Jones, National Chair of ASSIST FM Food and Drink, Commercial Manager Argyll and Bute Council

Invest in training

Conduct training in person and online and make learning and teaching an everyday part of your process. This is to ensure staff understand on-site processes and can follow them, so systems work as efficiently as possible. This is particularly important if staff turnover is high, because knowledge can be lost, so make sure key areas such as waste management and food saving practices are covered at the induction stage.

Ensure staff understand not only how equipment should be used, cleaned, shut down and maintained, but also how correct usage and following the right processes in all areas of the kitchen helps them do their job more easily, whilst reducing energy, water, chemical and food use to support the environment. When it comes to food waste, [Food needs you!](#) is a guide which outlines why every job role should care about waste and what they can specifically do to tackle it.



“Ensure that you understand the full range of functions that a piece of equipment has. Then make sure your teams know this too, including when and why they should use each setting.”

Paul Anderson, Managing Director, Meiko UK

Work with the team to change behaviour



Kitchen work can be repetitive making it hard to break bad habits so a shift in mindset is required if staff are going to create new behaviours and make them stick. Set targets and reward teams when they are met. Build waste as a KPI into team objectives. Create waste champions and implement peer group discussions to highlight best practice and share solutions.

Feedback performance and create a little healthy competition between sites with league tables.

Waterscan advise using context to help staff understand and relate to issues like water use, scarcity and how it impacts on their role. Make it something they can picture saying: “In that behaviour, you’re wasting this many pints of water each day. That is more water than a family of five use in a certain time frame, such as a week.”

Harness tech to train and track



Tech solutions can help you manage your waste. From eLearning modules that staff complete online, to apps like Yapster that help teams share messaging and best practice whilst providing all-important motivation and competition, tech can help staff remember new routines and remind them to follow new behaviours.

Today’s tech savvy employees may well feel more engaged with trackers that log their progress and reward their improvements. Solutions like the free [Wise Up on Waste](#) app, as well as the paid for [Leanpath](#), [Winnow](#) and [Chef’s Eye Tech](#) systems help you weigh and record food waste and can be very detailed, in some cases showing the exact types of waste, costs and carbon impact as well as helping you manage ordering and stock rotation.

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“We trialled the Wise Up On Waste app in four schools last year and over a six-month period the weekly waste dropped by 10% to 20% in most schools.”

Martin Wayman, Head of Corporate Responsibility, ISS Facility Services

Get customers onside



Make your waste reduction part of your marketing to customers and encourage them to play a part. The consumer-facing [Love Food Hate Waste](#) has messaging and collateral that you can use to talk to customers engagingly about waste.

And customers are increasingly receptive. Greene King’s consumer-facing food saving campaign used signage telling self-service buffet customers “This feast is too tasty to waste” to encourage them not to overserve. So far, it’s been very well received and initial signs indicate it is helping to reduce food waste.

Servers can also ask diners how hungry they are when they order and offer smaller portions or sides accordingly.

Providing and encouraging doggy bags also enables diners to take their leftover food home with them. In a buffet scenario, invite them to return multiple times rather than piling their plates. In universities, removing trays has cut food waste as students no longer fill a tray with items they do not eat.

Key resource

Designed with health in mind

A psychological approach to helping consumers make healthier choices in foodservice.



COMPASS

FOOTPRINT INTELLIGENCE

Designed with health in mind

[Designed with health in mind](#) outlines nudges and other psychological approaches to helping consumers make healthier, and less wasteful, choices in foodservice.

Consider pre-ordering options

A great way to avoid over-production can be to have customers pre-order their meal. This works well in the public sector – particularly in schools and hospitals – but other settings, such as workplace canteens, could trial systems like this too. Restaurants often do this when catering for larger parties by inviting diners to pre-order from a fixed menu.

Share your food with others



Use a food surplus redistribution app like [OLIO](#) or [Too Good To Go](#) to stop food that is fit to eat from being wasted by sharing it with others. Too Good To Go has found that opening up a different route to market for your products can introduce your restaurant to a new demographic of customer. Charities like [FareShare](#) can collect and redistribute surplus stock that is going out of date, preventing waste from spoilage, or you can offer it to employees.

East Ayrshire Council has been leading on a scheme in schools where leftover meals, sandwiches and rolls are portioned up and offered for collection later by those in need. Secondary schools have chillers in the dining hall and the leftover items are kept in the fridges for young people to pick up anonymously.

Switch the canteen to crockery

Takeaway containers provide convenience but are they really necessary? Consider whether you can ditch the polystyrene containers, paper cups and plastic cutlery and encourage people to use crockery and reusable cups instead. Find green alternatives for plastic cutlery and plastic straws to reduce your disposables waste, but remember to do your research and ensure any swaps are genuinely lower impact and that they work with your waste management options. Avoid single use plastics when storing food in the fridge or freezer and use lidded containers rather than plastic wrap or bags.

Aramark and BP dramatically reduced their disposals use by switching to reusable cups and beakers in onshore sites, and found that customers quickly embraced the new normal. Single use takeaway containers are now under the spotlight, with the details of a re-use scheme currently being hammered out.

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“We committed to switch off where possible anything that was single use plastic and replace it with sustainable alternatives like vegware and wooden cutlery. We’re working out the data on that and we’ll be publishing in the Spring but it’s huge. Over a million items of plastic cutlery will be gone from our ISS Business.”

Martin Wayman, Head of Corporate Responsibility, ISS Facility Services

Minimise Grab ‘n’ Go packaging

Look at your packaging for grab and go items like sandwiches and smoothies. Is it possible to make it more lightweight? Do all drinks – like thick shakes or smoothies – need lids? Are there other items in addition to hot drinks where customers can bring their own container? Can the packaging be made recyclable or made from recycled materials? And would switching from glass bottles to cans - which are lighter to transport, easy to stack, infinitely recyclable and take less time and energy to chill – be a better option for the products you are offering?

Look at lighting

Energy bills can be reduced by switching to LEDs. In public restrooms, corridors and storerooms, put lighting on sensors so they automatically switch off when no one is present. Create mood lighting in the restaurant by using low energy dimmable bulbs which can be turned down at night.

Manage water in toilet facilities

Use waterless urinals or put them on a timer flush, use sensors and dual flush in toilets and put taps on sensors to prevent them being left on. When designing a new build, make water-saving features part of the fabric of the building, such as a greywater system to filter and reuse water from sinks for toilet flushes, or rainwater harvesting on the roof. It is crucial to do this at the start because retrofit solutions are usually much more difficult and costly to implement later.

About Footprint Intelligence

The ever-shifting sustainability debate makes it vital for businesses to have accurate intelligence to make informed decisions. Footprint Intelligence is Footprint Media Group's research and analysis division, helping companies develop successful strategies in the context of responsible business practices.

Footprint Intelligence aims to drive, promote and share best practice by helping industry resolve pressing sustainability issues. It asks tough questions and finds answers. It uses research and industry insight to bring businesses together to identify solutions, opportunities, trends and challenges.

About this research

Footprint Intelligence was commissioned by Meiko UK to create a guide to reducing waste in foodservice kitchen environments. The research for this project comprised a mix of in depth, semi-structured interviews with foodservice experts, desk-based research, involvement in industry events and forums, as well as comment and insights gathered from other opinion leaders linked to industry.

Footprint Intelligence is indebted to the industry experts who generously gave their time and insights as part of the research process.

Report authors

Amy Fetzner is Head of Research and Analysis for Footprint Media Group. A journalist, author and consultant, Amy is passionate about helping individuals and organisations become more sustainable and more successful. She is the co-author of *Climb the Green Ladder: Make Your Company and Career More Sustainable*. Current and past clients include EY, WRAP, Canvas8, Sodexo and Hewlett-Packard. Amy has an MSc with Distinction in Sustainable Development from the University of Surrey, winning the Roland Clift Award for Environment and Sustainability Research.

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